REMARKS

This is in full and timely response to the Non-final Office Action dated January 16, 2007. The present Amendment amends claims 22, 23, 24, 30, 31, and 32 in order to further clarify a portion of the scope sought to be patented, and otherwise disputes certain findings of fact made in connection with the rejection of the claims. Support for these amendments can be found variously throughout the specification, including, for example, on page 65, lines 5-12, and in Figs. 17 and 18. No new matter has been added.

Accordingly, claims 22-38 and 40 are currently pending in this application.

In view of this response, Applicants believe that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks are respectfully requested.

New Claims

Support for new claims 43 and 44 can be found variously throughout the specification, including, for example, on page 45, line 21 to page 46, line 9 and in Figs. 17 and 18. Since each of these new claims is clearly distinguishable from the applied art of record, allowance of the same is courteously solicited.

Claim Rejections- 35 U.S.C. § 103

In the Final Office Action, claims 22-25, 27, 29, 30-33, 35, 36, 38, and 40 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over WO 02/02330 to Silverbrook ("Silverbrook) in view of U.S. Patent No. 6,270,187 to Murcia et al. ("Murcia") and U.S. Patent No. 6,270,199 to Kimura et al. ("Kimura"). Claims 28 and 37 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia and Kimura, and further in view of US Patent No. 6,309,050 to Ikeda et al. ("Ikeda"). Claims 26 and 34 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia and Kimura, and further in view of U.S. Patent No. 6,046,822 to Wen et al. ("Wen"). Claims 26 and 34 were further rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia, Kimura, and Ikeda, and further in view of Wen. This rejection is respectfully traversed for at least the following reasons.

Each of independent claims 22-24 and 30-32 discloses, *inter alia*, a liquid discharging head having liquid discharging portions, each of which comprises a liquid chamber containing liquid to be discharged and a plurality of heating elements arranged in a predetermined direction inside the liquid chamber to generate a bubble, wherein the influence of discharging failure of a defective discharging portion is reduced by prohibiting the defective liquid discharging portion from discharging and discharging droplets from a liquid discharging portion different from the defective liquid discharging portion while **controlling the discharging direction by forming a bubble generation time difference by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements so as to control the discharging direction of the liquid discharged** from the liquid discharging outlet.

In contrast, Kimura fails to disclose, teach, or even suggest controlling the discharging direction by forming a bubble generation time difference by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements. Rather, Kimura teaches the use of two heating elements which are either ON or OFF. If one element is on, a small bubble is generated; if both elements are on, a larger bubble is generated (see column 16, lines 24-34, and Tables 1 and 2 of Kimura). Kimura fails to teach that there is a difference in energy between the heating elements when they are simultaneously ON.

Additionally, Kimura fails to disclose, teach, or even suggest that the direction is controlled by forming a bubble generation time difference by applying a difference in energy between the heating elements, but rather, Kimura teaches that "[i]n the liquid ejecting head of the present invention, with the movable member **31**, even if heat generating elements are driven independently, the bubble generation power is guided to the center of the ejection outlet to stabilize liquid ejection in terms of ejection direction regardless of the position of a heat generating element with respect to the liquid flow path." (see column 16, line 62 to column 17 line 1 of Kimura). Accordingly, contrary to the presently claimed invention, Kimura teaches that the movable member **31**, for instance, guides the generated bubble to the center of the path, and therefore, the direction of the bubble ejected from the nozzle is not controlled by the heating elements, but by the movable member **31**..

In fact, Kimura teaches away from controlling the discharging direction by forming a bubble generation time difference. Kimura states that two heat generating elements are arranged

in one flow path to be driven independently, for the purpose of generating different bubble volumes (see column 3, lines 17-23 and Tables 1 and 2 of Kimura). As shown above, *supra*, Kimura teaches that the movable member **31**, for instance, guides the generated bubble to the center of the path, and therefore, the direction of the bubble ejected from the nozzle in Kimura is not controlled by the heating elements (see column 16, line 62 to column 17 line 1 of Kimura). Accordingly, controlling the discharging direction by forming a bubble generation time difference by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements would render Kimura unsatisfactory for its stated objective of guiding the bubble generation power to the center of the outlet to "stably eject" the droplets (see column 17, lines 2-5 of Kimura). *See, e.g., In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *accord.* MPEP 2143.01 ("If [the] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification"); *accord.* MPEP 2143.01. As established by the federal courts, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *See, e.g., In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959); *accord.* MPEP 2143.01.

Additionally, neither Silverbrook, Murcia, Ikeda, nor Wen cures the deficiencies of Kimura shown above. Accordingly, because Silverbrook, Murcia, Ikeda, and Wen, either alone or in combination, fail to disclose, teach or suggest each and every limitation of claims 22-24 and 30-32, a *prima facie* case of obviousness has not been established, and withdrawal of this rejection is respectfully requested. *See, e.g., In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *accord.* MPEP 2143.03.

Moreover, aside from the novel limitations recited therein, claims 25-29, 33-38, and 40, being dependent either directly or indirectly upon allowable base claims 22-24 and 30-32, are also allowable for at least the reasons set forth above. Withdrawal of the rejection of these claims is therefore courteously solicited.

CONCLUSION

For at least the foregoing reasons, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the examiner is respectfully requested to pass this application to issue. If the examiner has any comments or suggestions that could place this application in even better form, the examiner is invited to telephone the undersigned attorney at the below-listed number.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. SON-2826 from which the undersigned is authorized to draw.

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Respectfully submitted,

By_____

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